

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-27 (Canceled)

Claim 28 (Currently Amended): Apparatus for transferring data from a host computing system to a magnetic tape storage means or the like, the apparatus comprising means for receiving data and dividing it into blocks, means for writing said blocks of data in sets of a plurality of blocks to said storage means, means for reading back data written to said storage means and transferring said read data to error checking means, said error checking means being arranged to determine if a block of data includes any errors and generate a positive output if the number of errors in said block of data is zero or does not exceed a predetermined number and/or a negative output if the number of errors in said block of data is greater than zero or exceeds a predetermined number, history storage means for storing information relating to at least some of the sets of data written to said storage means together with information corresponding to the output of said error checking means for each block of data in a set, and means for rewriting a set of blocks of data to said storage means if the output generated by the error checking means and stored in said history storage means is negative for more than a predetermined number of the blocks of data and/or a predetermined number or density within a block or set of data, said means for

rewriting sets of data being configured such that said predetermined number or density is definable according to user requirements;

each of said sets of data being identified in said history storage means by a plurality of bits of data, said bits of data comprising at least two quality bits relating to each block of data in a set;

said quality bits being set to '0' when the respective block of data is initially written to said storage means;

each block of data comprising a header and two codewords;

said error checking means is arranged to determine if the header of a block of data contains an error and, if so, to set the respective quality bits to '00'; and if the header of a block of data is determined to contain no errors, the error checking means is arranged to determine if either of the codewords in the block of data contains an error and to set the row quality bits to '01' if both codewords are determined to contain one or more errors, to '10' if only one of the codewords in the block of data is determined to contain at least one error, and to '11' if both codewords are determined to contain no errors ~~Apparatus according to claim 27, comprising~~

an N-bit look-up table which can be used to define the quality criteria by which a block of data is to be rewritten or not, wherein N is the number of combinations of 1's and 0's which can occur in the ~~row~~-quality bits for each block of data in a set.

Claim 29 (original): Apparatus according to claim 28, wherein two row quality bits are provided for each block of data in a set, the apparatus comprising a 16-bit look-up table to define the quality criteria by which a block of data is to be rewritten or not.

Claims 30-38 (Canceled)

Claim 39 (New): A method of determining if data on an elongated storage medium having  $I$  recorded parallel elongated tracks storing a data set including  $J = 2I$  sub datasets has areas that require some data in the data set to be rewritten; each sub dataset including  $K$  codeword pairs and  $L$  parity bytes having values determined by bits in the  $K$  codeword pairs of the particular sub dataset; each codeword pair including (a) a header identifying the codeword, (b) user data and (c) parity bytes; the tracks being divided into  $M = (K + L)$  longitudinal segments where said dataset is stored; segment  $m$  including the  $I$  tracks, track  $i$  of segment  $m$  including longitudinally spaced codeword pairs from different sub datasets, where  $m = 0 \dots (M - 1)$ ,  $i = 0 \dots (I - 1)$  so that segment  $i$  stores a codeword quad set including  $J$  codeword pairs from the  $J$  sub datasets, the method comprising:

storing a plurality of bits for each codeword pair of each codeword quad set;

attempting to read each codeword quad set from the medium;

determining, from each header successfully read from the medium, the codeword pair identification of each codeword in the quad sets successfully read from the header and reading the remainder of the codeword pair successfully read from the medium;

checking for errors in the codeword of each identified codeword pair;

responding to an unsuccessful attempt to read the header by setting the stored bits to a first combination for the codeword pair having the header that was unsuccessfully read;

responding to a successful attempt to read the header and an indication derived from the checked errors that both codeword pairs of a read track of a codeword quad set contains as many as  $N$  error(s) (where  $N$  is one or more) by setting the stored bits for both codeword pairs of the read track to a second combination;

responding to a successful attempt to read the header and an indication derived from the checked errors that only one codeword pair of a read track of a codeword quad set contains as many as  $N$  error(s) by setting the stored bits for both codeword pairs of the read track to a third combination;

responding to a successful attempt to read the header and an indication derived from the checked errors that none of the codeword pairs of a read track of a codeword quad set contains as many as  $N$  error(s) by setting the stored bits for both codeword pairs of the read track to a fourth combination; and

determining if a codeword quad set should be rewritten by responding to the stored plurality of bits for each codeword quad set that has been checked for errors.

Claim 40 (New): The method of claim 39 further including changing the value of  $N$  for different operating conditions.

Claim 41 (New): The method of claim 39 wherein  $I = 8$ .

Claim 42 (New): The method of claim 39 further including re-writing the codeword quadset onto the medium in response to the determining step indicating the codeword quadset should be rewritten.

Claim 43 (New): Apparatus for performing the method of claim 39.

Claim 44 (New): The apparatus of claim 43 in combination with a head arrangement for writing the data onto the tracks of the medium and for reading the data from the tracks of the medium after the data have been written onto the tracks by the head arrangement.

Claim 45 (New): A method of determining if data on an elongated storage medium having  $I$  recorded parallel elongated tracks storing a data set including  $J = 2I$  sub datasets has areas that require some data in the data set to be rewritten; each sub dataset including  $K$  codeword pairs and  $L$  parity bytes having values determined by bits in the  $K$  codeword pairs of the particular sub dataset; each codeword pair including (a) a header identifying the codeword, (b) user data and (c) parity bytes; the tracks being divided into  $M = (K + L)$  longitudinal segments where said dataset is stored; segment  $m$  including the  $I$  tracks, track  $i$  of segment  $m$  including longitudinally spaced codeword pairs from different sub datasets, where  $m = 0 \dots (M - 1)$ ,  $i = 0 \dots (I - 1)$  so that segment  $i$  stores a codeword quad set including  $J$  codeword pairs from the  $J$  sub datasets,  
the method comprising:

storing a plurality of bits for each codeword pair of each codeword quad set;

attempting to read each codeword quad set from the medium;

determining, from each header successfully read from the medium, the codeword pair identification of each codeword in the quad sets successfully read from the header and reading the remainder of the codeword pair successfully read from the medium;

checking for errors in the codeword of each identified codeword pair; and

determining whether each codeword quadset is acceptably recorded by evaluating each codeword quadset for header and codeword pair errors and combining the evaluations.

**Claim 46 (New):** The method of claim **45** further including re-writing the codeword quadset onto the medium in response to the determining step indicating the codeword quadset is not acceptably recorded.

**Claim 47 (New):** Apparatus for performing the method of claim **45**.

**Claim 48 (New):** The apparatus of claim **47** in combination with a head arrangement for writing the data onto the tracks of the medium and for reading the data from the tracks of the medium after the data have been written onto the tracks by the head arrangement.